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Invention Title: **OFFSET CONNECTOR**

The following statement is a full description of this invention, including
the best method of performing it known to us:

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OFFSET CONNECTOR

The present invention relates to an offset connector which in one particular application is used to connect a bathtub outlet to a fixed pipe or conduit in a concrete slab.

Typically when a concrete slab has been laid and formed to include the relevant drainage pipes there may be some misalignment between these pipes and respective outlets of receptacles with which they are connected. These receptacles could include baths, basins and sinks. Because of the limited space which is often available between the receptacle and the associated drainage pipe it is not possible to use a conventional S-bend to correct any offset which occurs from misalignment between these pipes and the outlets. For this reason an offset connector can be used as shown in Figure 1. This connector 11 consists of an upper generally cylindrical cover 12 with an inlet 13, and a lower cylindrical cover 14 with an outlet conduit 15 extending therefrom.

The upper cover 11 is able to be rotated with respect to the lower cover 14 so that when the inlet 13 is connected to the outlet of a bath, for example, if the bath outlet is misaligned with the drainage pipe, the lower cover 14 can be rotated so that outlet conduit 15 can be aligned with the drainage pipe and can be connected thereto.

The above described offset connector solves the problem of aligning a receptacle outlet with a drainage pipe but does not address the problem of aligning the outlet conduit with a drainage pipe which may not perfectly align with it so that they can both be connected together. In most situations the drainage pipe is not aligned completely vertically which means that it has to be replaced or bent so that it is aligned vertically with the outlet conduit 15.

Another problem with the above described offset connector is that once the inlet 13 is connected to a bath outlet the outlet conduit 15 can only be moved to

points aligned with the periphery of the lower cover 14. If it is necessary to move the upper and lower covers 12 and 14 relative to the inlet 13 the inlet collar 16 must be continually screwed on and screwed off the receptacle outlet fitting to which it is to be connected.

According to the present invention there is provided an offset connector for providing fluid communication between two spaced apart fluid passages, comprising an inlet portion for entry of fluid, an outlet portion for discharge of fluid and a main chamber portion interconnecting the inlet and outlet portions and having upper and lower walls movable with respect to each other, with the inlet portion connected to one of the walls and the outlet portion connected to the other, and wherein at least one of the inlet or outlet portions comprises a connection means including a peripheral sealing means which permits a conduit to be connected thereto while out of alignment with the inlet or outlet portion to which it is to be attached.

It is preferred that the connection means comprises a collar.

The connection means may be located at a lower end of the outlet portion.

It is preferred that the collar includes the peripheral sealing means.

The peripheral sealing means may comprise an O-ring.

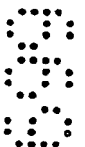
Preferably the inlet portion comprises a flared inlet opening.

The outlet portion may comprise a conduit having a lower end (outermost) of reduced diameter.

The collar preferably comprises a peripheral enlargement having a peripheral groove arranged to receive a sealing ring.

The outlet portion conduit preferably comprises an upper end which extends into the main chamber portion.

The upper end preferably comprises a tubular wall which extends upwardly close to the upper wall.



The upper wall may be coupled with the lower wall to form an internal chamber of the main chamber, with the inlet portion extending through a top surface of the upper wall and the outlet portion extending through a bottom surface of the lower wall.

The lower wall preferably slopes downwardly towards the outlet portion.

The inlet portion may comprise a lower tubular wall which extends into the internal chamber.

The lower tubular wall of the inlet portion and the upper tubular wall of the outlet portion and the inlet chamber together preferably creates a serpentine path for fluid flowing from the inlet portion to the outlet portion.

The vertical lengths of the lower tubular wall may extend into a region of the internal chamber defined by the lower wall.

According to another embodiment the vertical length of the upper tubular wall extends into a region of the internal chamber defined by the upper wall.

According to a further embodiment of the present invention the internal chamber includes a trap for collecting particulate matter passing through the offset connector.

It is preferred that the upper tubular wall and the lower tubular wall form part of the trap.

It is preferred that the top of the upper tubular wall is above the bottom of the lower tubular wall.

A preferred embodiment of the present invention will now be described by way of example only with reference to the accompanying drawings in which:

Figure 1 shows a prior art offset connector;

Figure 2 shows a side sectional view of a connector according to a first embodiment of the present invention; and

Figure 3 shows a perspective view of the offset connector shown in Figure 2.

As shown in Figure 2, the offset connector 20 is

formed from an upper cover 21 of generally cylindrical shape and a lower cylindrical receptacle 22 having a peripheral wall 23 approximately twice the height of the peripheral wall 23 of the cover 21. The cover 21 is
5 provided with a water inlet conduit 24 with a narrow neck 25 and a flared inlet 26. The inlet conduit 24 also includes an internal lower conduit 27 which extends vertically downwardly close to the bottom of the receptacle 22.

10 The neck 25 has a throat portion which includes a cross-shaped webbing 28 with a centrally located bore 29 which is adapted to receive a screw 30.

The base of the receptacle 22 includes a sloping section 31 which slopes gradually from the outermost side
15 of the inlet 24 to an outlet conduit 32.

The outlet conduit 32 is located on the opposite side of the offset connector 20 to that of the inlet 24. The conduit 32 comprises a vertical tubular wall which at its upper end extends to the interior of the chamber 33
20 created inside of the offset connector 20. This upper end terminates close to the level of the lowermost extent of the peripheral wall 23 of cover 21 and thus well above the base 31.

The combined effect of the internal lower conduit 27 and upper end of the vertical tubular wall of the outlet conduit 32 creates a trapping effect within the offset connector so that particulate matter passing through the water inlet conduit 24 collects around the external periphery of the inside part of the vertical tubular wall
25 50 located inside chamber 33.

The outlet conduit 32 comprises an area of enlarged diameter 34 just below the base of the receptacle 22 and an area of reduced diameter 35 below the area 34.

At the bottom of the outlet conduit 32 a collar 36
35 is provided which has a generally rounded peripheral surface with a centrally located peripheral groove 37 which houses an O-ring 38.

In use, the inlet 24 may be connected to the outlet

of a receptacle such as a bath by locating the flared lip 40 of the inlet against the outside of the outlet of a bath, placing the rubber seal over the outlet above the flared lip 41 of the inlet and then connecting a grate 43 to the inlet 24 by screwing the screw 30 into the bore 29.

Somewhere below the bath a drainage pipe is located and the outlet conduit 32 can be manoeuvred over the drainage pipe by firstly rotating the whole offset connector with respect to the grate 43 and then moving the receptacle 22 with respect to the cover 21.

As shown in Figure 2 the peripheral wall 23 of the cover 21 has a small internal flange 44 which fits into a corresponding peripheral groove 45 formed at the upper end of the peripheral wall of the receptacle 22.

The groove 45 has a lower peripheral rib 46 and an upper peripheral rib 47 which is of smaller width. This ensures that the outside peripheral diameter of the cover 41 matches that of the lower rib 46. A seal 48 can also be located between the outer surface of the groove defined between ribs 45 and 46 and the inner surface of lip 44.

The lip 44 is therefore able to slide within the groove 48 so that the outlet conduit 32 can be aligned with a drainage pipe. When this occurs even if the drainage pipe is angled away from a vertical orientation the lower end of the outlet conduit is still able to form a seal with the inner surface of the drainage pipe which fits over the lower end of the outlet conduit 32.

Traditionally, if there is any misalignment between an outlet conduit and the drainage pipe to which it is to be connected, a proper seal between the two could not be effected without taking components apart and realigning them. The collar 36 at the lower end of the outlet conduit provides an easy method of connecting an outlet conduit to a drainage pipe even if the drainage pipe is offset at an angle with respect to the vertical orientation of the outlet conduit or vice versa. In

addition, the interior construction of the offset connector ensures a serpentine path is provided for fluids passing from the inlet to the outlet.

- 5 Another advantage of the above described embodiment is that when particulate matter collects in the chamber 33 the cover 21 can be removed from the receptacle 22 by simply disconnecting the inlet conduit 24 and/or the outlet conduit 32. In traditional offset connectors both the outlet and inlet conduits are permanently fixed in
10 position and cannot be removed.

CLAIMS

1. An offset connector for providing fluid communication between two spaced apart fluid passages, comprising an inlet portion for entry of fluid, an outlet portion for discharge of fluid and a main chamber portion interconnecting the inlet and outlet portions having upper and lower walls movable with respect to each other, with the inlet portion connected to one of the walls and the outlet portion connected to the other, and wherein at least one of the inlet or outlet portions comprises a connection means including a peripheral sealing means which permits a conduit to be connected thereto while out of alignment with the inlet or outlet portion to which it is to be attached.

2. An offset connector as claimed in claim 1 wherein the connection means comprises a collar including the peripheral sealing means.

3. An offset connector as claimed in claim 1 or 2 wherein the connection means is located at a lower end of the outlet portion.

4. An offset connector as claimed in claim 2 wherein the collar comprises a peripheral enlargement having a peripheral groove which is arranged to receive the sealing means.

5. An offset connector as claimed in any one of the preceding claims wherein the inlet portion comprises a lower tubular wall which extends into the internal chamber and the outlet portion comprises an upper tubular wall which extends into the internal chamber with a top-portion of the upper tubular wall being located above the bottom of the lower tubular wall.

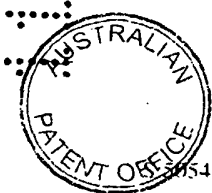
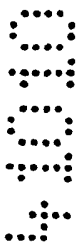
6. An offset connector substantially as hereinbefore described with reference to Figures 2 and 3 of the accompanying drawings.

Dated this 8th day of June 1999

STARLIGHT SECURITY SYSTEMS PTY LTD

By their Patent Attorney

GRIFFITH HACK



ABSTRACT

An offset connector for providing fluid communication between two spaced apart fluid passages, comprising an inlet portion for entry of fluid, an outlet portion for discharge of fluid and a main chamber portion interconnecting the inlet and outlet portions and comprising upper and lower walls movable with respect to each other, with the inlet portion connected to one of the walls and the outlet portion connected to the other, and wherein at least one of the inlet or outlet portions comprises a connection means including a peripheral sealing means which permits a conduit to be connected thereto while out of alignment with the inlet or outlet portion to which it is to be attached.

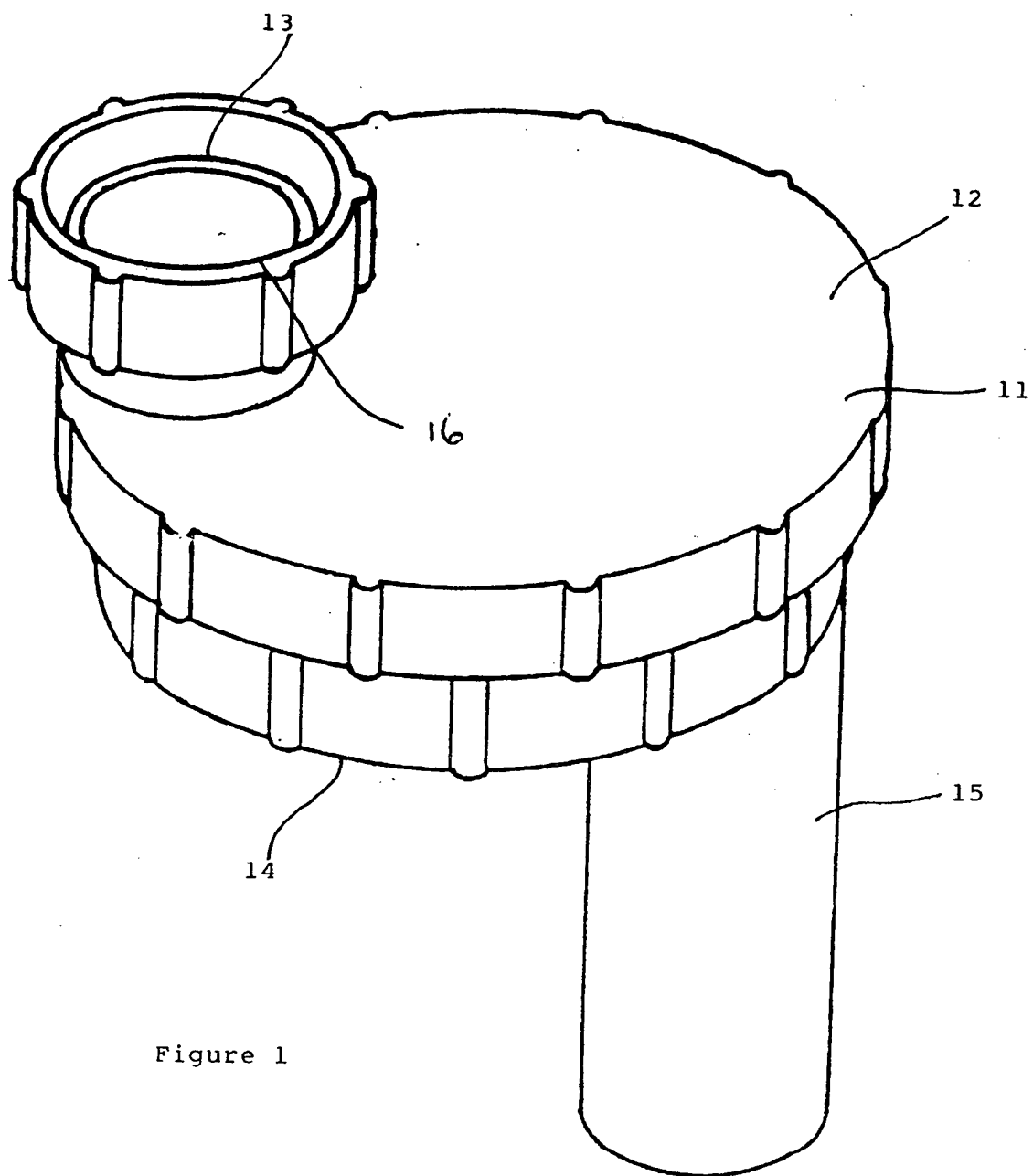
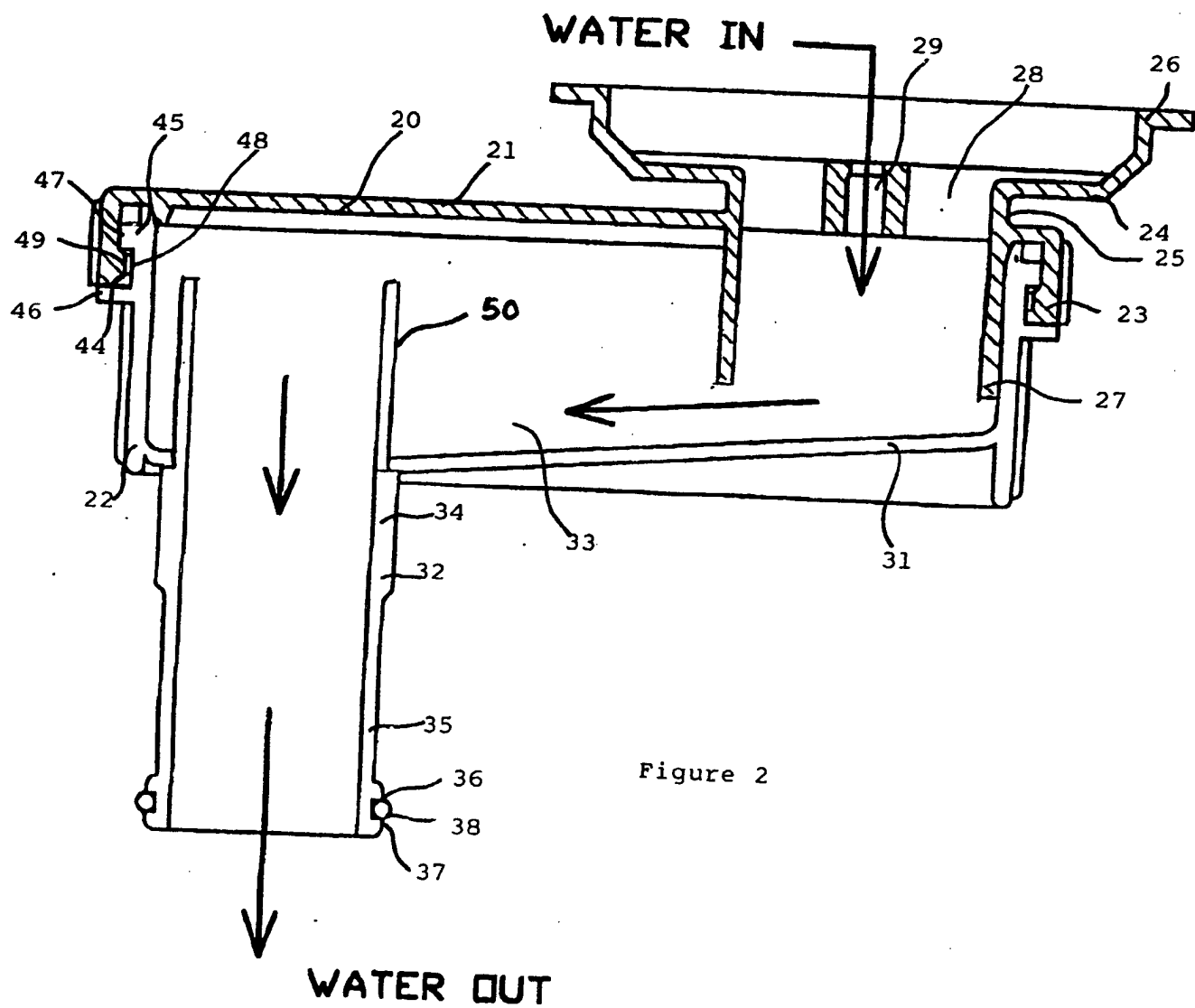


Figure 1

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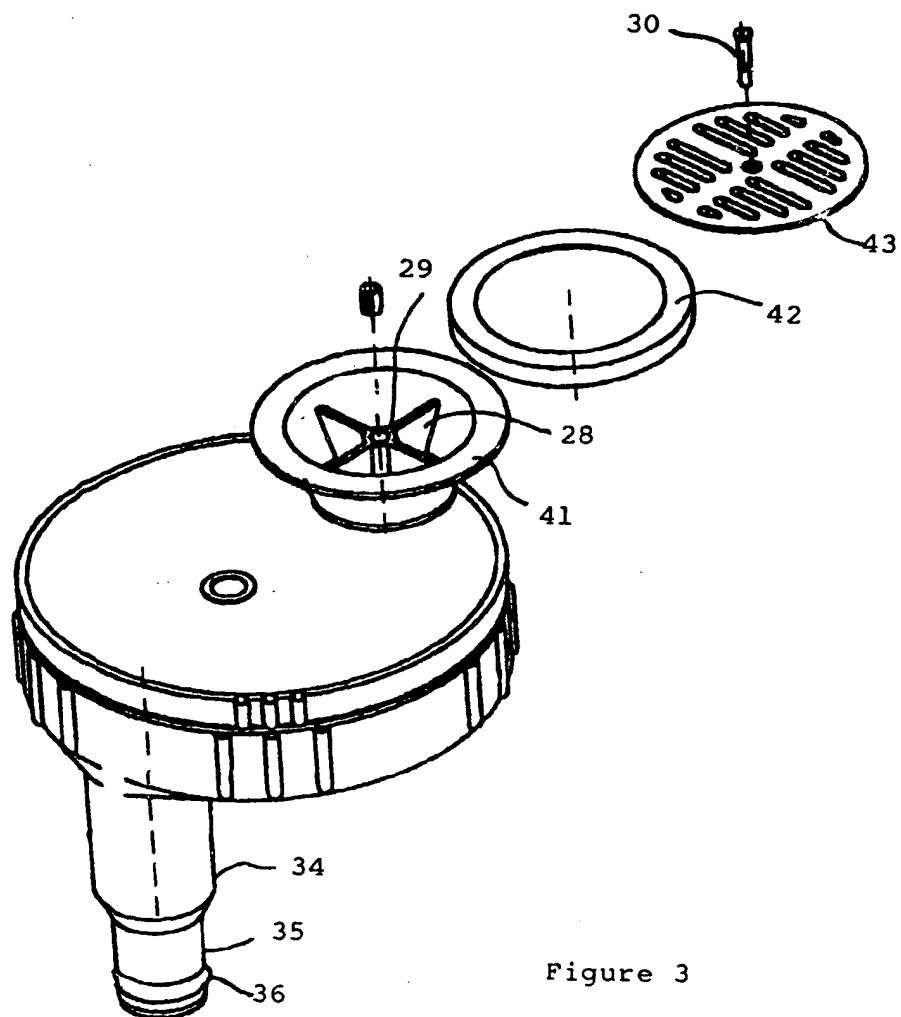


Figure 3